S. Ridley
Norfolk and Norwich University Hospital,
Norwich NR4 7UY, UK
E-mail: saxon@domum.globalnet.co.uk

An unusual postoperative burn

I wish to report an unusual postoperative burn in a 79 year-old man undergoing a right total hip replacement. A pre-operative lumbar plexus block was performed and general anaesthesia induced. He was placed in the left lateral position with a beanbag to secure him and an axillary roll was placed under the dependent left axilla. The diathermy plate was attached to the left thigh. An upper body forced air-warming blanket (Bair Hugger®) and fluid warmer were used. His body temperature fell from 36.4 to 35.5 °C during the procedure. He remained haemodynamically stable throughout the 4 h operation, during which he received 3 l of warmed crystalloids. On the second postoperative day, he complained of severe pain posterior and inferior to his left axilla. Examination revealed a mixed partial and full thickness burn (Fig. 1). The surface area of the burn was about 2% and required debridement and skin grafting.

The cause of the burn in this patient was initially unclear but careful observation of the burn site showed it to correspond to the position of the axillary roll. The roll comprised a litre bag of crystalloid wrapped with a cotton towel and placed under the dependent axilla. The bag of fluid was obtained from a warming cabinet that maintains a fairly constant temperature of 37 °C. Although the bag of fluid was at normal body temperature, the high specific heat capacity of water (4.18 $J.g^{-1}°C$) contributed to the transfer of heat to patient's skin. Furthermore, the pressure exerted by the patient's weight on the dependent, hypothermic and vasoconstricted skin over a long period of time probably resulted in the burn. A review of the literature revealed a report of two cases of intra-operative burns following the use of warmed IV bags [1]. Since this incident there has been a change in practice in our hospital. Rolled cotton blankets with or without a litre bag of fluid at room temperature are now employed. Operating room staff have been informed not to use warmed fluid bags from the warming cabinet as bolsters.

Figure 1 Postoperative burn at the site of an axillary roll.

P. Zuokumor
University of Michigan Hospital,
Ann Arbor, MI 48109–0048, USA
E-mail: preyez@med.umich.edu

Reference

1 Rosenfield LK, Pitlyk PJ. Intraoperative burns secondary to warmed IV bags: a warning. *Anesthesiology* 1999; **90**: 616–8.

Analgesic requirements in morbidly obese patients

Surgical intervention for obese patients unable to lose weight by traditional methods such as dieting, exercise and lifestyle changes has increased. Previous studies have shown a decrease in analgesic requirements when gastric bypass surgery was undertaken laparoscopically rather than by open laparotomy with an improvement in respiratory function [1,2]. However, general anaesthesia was used in both studies with no additional regional techniques. We have reviewed the analgesia requirements and complications after open gastric bypass under general anaesthesia where local analgesic infiltration of the rectus sheath and skin was employed.

Forty patients with morbid obesity were assessed over an 18-month period. They all underwent open gastric bypass through an upper midline incision and were operated on by a single surgeon. The surgery consisted of mobilising a small gastric pouch (30–40 ml), constructing a Roux-en-Y loop and gastrojejunostomy. All patients received a standardised general anaesthetic (propofol, fentanyl, air-oxygen-sevoflurane, morphine). On completion of surgery 60–80 ml bupivacaine 0.25% was infiltrated into the rectus sheath and subcutaneously. Patient controlled analgesia was started in the recovery room (1 mg bolus, 5 min lockout period). Paracetamol was given every 6 h or diclofenac 50 mg every 8 h or both for 48 h postoperatively (both administered PR). The patients were mobilised on the first postoperative day, had the nasogastric tube removed on the third day and underwent a gastrograffin swallow on the fifth day.

The mean (range) BMI of the patients was 53 (41–75); 6 patients had a BMI of 61–70 and 2 patients had a BMI greater than 70 $kg.m^{-2}$. There were only two major complications: a subdiaphragmatic collection and a deep abdominal collection. There were no instances of pneumonia, deep vein thrombosis or pulmonary emboli. The median (interquartile range) morphine consumption was 23 mg (13–31), 32 mg (22–55) and 10 mg (3–27) on the day of surgery, the first and the second postoperative day, respectively. These morphine requirements are less than those previously described after open laparotomy under general anaesthesia (mean 76 and 49 mg on the first postoperative day, and 61 and 37 mg on second postoperative day [1,2]). They are also less than that required with a laparoscopic technique [1]. However, neither of the studies quoted describe whether opioid-sparing non-steroidal analgesics were used or not.

We suggest that the use of rectus sheath and skin infiltration with local analgesic solution should be considered as a method of reducing morphine requirements after open gastric bypass surgery in obese patients. Further work is needed to examine the effect of this technique on pulmonary function [3].

S. Batistich
A. Kendall
S. Somers
King Edward VII Hospital,
Midhurst GU29 0BL, UK
E-mail: stuart_batistich@hotmail.com